

REMARKS

Claims 1-20 are pending in this application. By this Amendment, claim 20 is amended to overcome the 35 U.S.C. §101 rejection. Support for the amendment to claim 20 can be found, for example, in Fig. 7 and on page 26, line 12 to page 27, line 15. The title also is amended. No new matter is added. Reconsideration of this application in view of the above amendments and the following remarks is respectfully requested.

Applicant appreciates the courtesies shown to Applicant's representatives by Examiners Park and Anand in the May 27, 2008 personal interview. Applicant's separate record of the substance of the interview is incorporated into the following remarks.

The Office Action objects to the title. The objection is obviated by the above amendment to the title.

The Office Action rejects claim 20 under 35 U.S.C. §101. The rejection is respectfully traversed. As agreed during the interview, the rejection is obviated by the above amendment to claim 20. Thus, it is respectfully requested that the rejection be withdrawn.

The Office Action rejects claims 1, 5-9, 11-14 and 18-20 under 35 U.S.C. §102(b) over Norimatsu, U.S. Patent No. 6,415,053. The rejection is respectfully traversed.

As agreed during the interview, Norimatsu fails to disclose or suggest a second calculating unit calculating a new pixel value of the subject pixel based on the original pixel value of the subject pixel, a value determined dependently on the vector magnitude, and a pixel value of an adjustment pixel, the adjustment pixel being one of at least one first candidate surrounding pixel and at least one second candidate surrounding pixel, the at least one first candidate surrounding pixel being positioned in the vector direction, the at least one second candidate surrounding pixel being positioned in an opposite vector direction opposite to the vector direction, the adjustment pixel having a pixel value closest to the original pixel value of the subject pixel among the at least one first candidate surrounding pixel and the at

least one second candidate surrounding pixel, and a setting unit setting the new pixel value to the subject pixel, thereby obtaining a new image, as recited in independent claim 1, and similarly recited in independent claims 13, 14 and 20.

As discussed during the interview, Norimatsu discloses an image processing method and apparatus that calculates and stores gradients representing directions and intensities of a pixel of interest (allegedly corresponding to the claimed subject pixel) and its surrounding pixels (see Abstract). Norimatsu compares the gradients of the pixel of interest with the gradients of all of the surrounding pixels, and determines if a connectivity between the pixel of interest and all of the surrounding pixels exists by comparing the direction of the gradients of all of the surrounding pixels with the direction of the gradient of the pixel of interest (see col. 4, lines 13-19). That is, Norimatsu determines connectivity based on comparing the directions of the gradients of all of the surrounding pixels with the direction of the gradient of the pixel of interest, not based on a surrounding pixel positioned in the vector direction of a pixel of interest and another pixel positioned in an opposite vector direction of the pixel of interest, as recited in independent claims 1, 13, 14 and 20. This is emphasized in Fig. 11B where the gradient of the pixel of interest coincides with the direction of the arrow, but the adjacent pixels in the upper left and lower right squares (that are not positioned in the direction of the arrow) are chosen as the pixel values (see col. 20, lines 57-62).

Further, if sufficient connectivity exists between the gradients of surrounding pixels with the direction of the gradient of the pixel of interest, then it is determined that the pixel of interest is an edge portion and the edge portion data is extracted (see col. 4, lines 9-12). The image data based on the extraction result of the edge portion is then divided into a plurality of regions (see Abstract). The sharpness of the image is then corrected based on the presence or the absence of an edge portion (see col. 4, lines 34-37 and col. 29, lines 1-4). That is, Norimatsu discloses changing the pixel of interest by a correction amount based on whether

or not there is an edge portion, not by setting the value of the pixel of interest based on a value of an adjacent pixel that is positioned either in the gradient direction of the pixel of interest or positioned in the direction opposite to the gradient direction of the pixel of interest.

Therefore, as agreed during the interview, Norimatsu fails to disclose or suggest a second calculating unit calculating a new pixel value of the subject pixel based on the original pixel value of the subject pixel, a value determined dependently on the vector magnitude, and a pixel value of an adjustment pixel, the adjustment pixel being one of at least one first candidate surrounding pixel and at least one second candidate surrounding pixel, the at least one first candidate surrounding pixel being positioned in the vector direction, the at least one second candidate surrounding pixel being positioned in an opposite vector direction opposite to the vector direction, the adjustment pixel having a pixel value closest to the original pixel value of the subject pixel among the at least one first candidate surrounding pixel and the at least one second candidate surrounding pixel, and a setting unit setting the new pixel value to the subject pixel, thereby obtaining a new image, as recited in independent claim 1, and similarly recited in independent claims 13, 14 and 20. Therefore, independent claims 1, 13, 14 and 20, and dependent claims 5-9, 11, 12, 18 and 19 are patentable over Norimatsu. Thus, it is respectfully requested that the rejection be withdrawn.

The Office Action rejects claims 2-4 and 15-17 under 35 U.S.C. §103(a) over Norimatsu in view of Miller et al. (Miller), U.S. Patent No. 4,941,191; and rejects claim 10 under 35 U.S.C. §103(a) over Norimatsu in view of Mancuso et al. (Mancuso), U.S. Patent Application Publication No. 2001/0031097 A1.

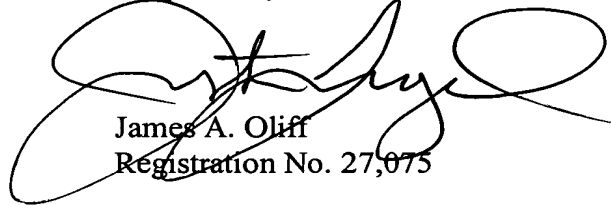
Because claims 2-4, 10 and 15-17 incorporate the features of independent claims 1 and 14, respectively, and because Miller and Mancuso fail to overcome the deficiencies of Norimatsu, these claims also are patentable over the applied references for at least these

reasons, as well as for the additional features that these claims recite. Thus, it is respectfully requested that the rejections be withdrawn.

In view of the foregoing, it is respectfully submitted that this application is in condition for allowance. Favorable reconsideration and prompt allowance are earnestly solicited.

Should the Examiner believe that anything further would be desirable in order to place this application in even better condition for allowance, the Examiner is invited to contact the undersigned at the telephone number set forth below.

Respectfully submitted,

A handwritten signature in black ink, appearing to read 'James A. Oliff', is written over the typed name and registration number.

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Date: May 28, 2008

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